

## CLAIMS

What is claimed is:

1. A method for stimulating activation of gene transcription in a cell, comprising contacting a cell with a modulating agent capable of inhibiting degradation of cytoplasmic  $\beta$ -catenin, wherein the agent comprises an internalization moiety and one or more of:
  - (a) the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1); or
  - (b) a peptide analogue or peptidomimetic of the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1);and thereby stimulating activation of gene transcription in the cell.
2. A method according to claim 1, wherein the modulating agent comprises the linear peptide sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1).
3. A method according to claim 1, wherein the internalization moiety is a peptide internalization sequence.
4. A method according to claim 3, wherein the internalization sequence comprises a sequence selected from the group consisting of RQIKIWFQNRRMKWKK (SEQ ID NO:9), RQIKIWPQNRRNKWKK (SEQ ID NO:10) and YGRKKRRQRRR (SEQ ID NO:14).
5. A method according to claim 4, wherein the modulating agent has the sequence YGRKKRRQRRRGSYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:15).

6. A method according to claim 4, wherein the modulating agent has the sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)GRQIKIWPQNRRNKWKK (SEQ ID NO:12).

7. A method according to claim 1, wherein the internalization moiety is a liposome.

8. A method according to claim 1, wherein the internalization moiety is an antibody or ligand that specifically binds to a cell surface receptor.

9. A method according to claim 1, wherein the modulating agent is linked to a targeting agent.

10. A method according to claim 1, wherein the modulating agent is present within a pharmaceutical composition comprising a pharmaceutically acceptable carrier.

11. A method according to claim 1, wherein the activation of gene transcription is mediated by a member of the Wnt signaling cascade.

12. A method for stimulating differentiation of a cell, comprising contacting a cell with a modulating agent capable of inhibiting degradation of cytoplasmic  $\beta$ -catenin, wherein the agent comprises an internalization moiety and one or more of:

(a) the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1); or

(b) a peptide analogue or peptidomimetic of the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1);

and thereby stimulating differentiation of the cell.

13. A method according to claim 12, wherein the modulating agent comprises the linear peptide sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1).

14. A method according to claim 12, wherein the internalization moiety is an internalization sequence.

15. A method according to claim 14, wherein the internalization sequence comprises a sequence selected from the group consisting of RQIKIWFQNRRMKWKK (SEQ ID NO:9), RQIKIWPQNRRNKWKK (SEQ ID NO:10) and YGRKKRRQRRR (SEQ ID NO:14).

16. A method according to claim 15, wherein the modulating agent has the sequence YGRKKRRQRRRGSYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:15).

17. A method according to claim 15, wherein the modulating agent has the sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)GRQIKIWPQNRRNKWKK (SEQ ID NO:12).

18. A method according to claim 12, wherein the internalization moiety is a liposome.

19. A method according to claim 12, wherein the internalization moiety is an antibody or ligand that specifically binds to a cell surface receptor.

20. A method according to claim 12, wherein the modulating agent is linked to a targeting agent.

21. A method according to claim 12, wherein the modulating agent is present within a pharmaceutical composition comprising a pharmaceutically acceptable carrier.

22. A method according to claim 12, wherein the cell is a skin cell.
23. A method according to claim 12, wherein the cell is a keratinocyte.
24. A method for stimulating hair growth on a mammal, comprising administering to a mammal a modulating agent capable of inhibiting degradation of cytoplasmic  $\beta$ -catenin, wherein the agent comprises an internalization moiety and one or more of:
- (a) the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1); or
  - (b) a peptide analogue or peptidomimetic of the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1);
- and thereby stimulating hair growth or reducing hair loss on the mammal.
25. A method according to claim 24, wherein the modulating agent comprises the linear peptide sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1).
26. A method according to claim 24, wherein the internalization moiety is an internalization sequence.
27. A method according to claim 26, wherein the internalization sequence comprises a sequence selected from the group consisting of RQIKIWFQNRRMKWKK (SEQ ID NO:9), RQIKIWPQNRRNKKWKK (SEQ ID NO:10) and YGRKKRRQRRR (SEQ ID NO:14).
28. A method according to claim 27, wherein the modulating agent has the sequence YGRKKRRQRRRGSYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:15).

29. A method according to claim 27, wherein the modulating agent has the sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)GRQIKIWPQNRRNKWKK (SEQ ID NO:12).

30. A method according to claim 24, wherein the internalization moiety is a liposome.

31. A method according to claim 24, wherein the internalization moiety is an antibody or ligand that specifically binds to a cell surface receptor.

32. A method according to claim 24, wherein the modulating agent is linked to a targeting agent.

33. A method according to claim 24, wherein the modulating agent is present within a pharmaceutical composition comprising a pharmaceutically acceptable carrier.

34. A method according to claim 24, wherein the step of administering comprises contacting skin cells with the modulating agent.

35. A method according to claim 34, wherein the skin cells are present on the scalp of the mammal.

36. A method according to claim 34, wherein the skin cells are present within the ear of the mammal.

37. A method for stimulating exfoliation of skin on a mammal, comprising administering to a mammal a modulating agent capable of inhibiting degradation of cytoplasmic  $\beta$ -catenin, wherein the agent comprises an internalization moiety and one or more of:

(a) the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1); or

(b) a peptide analogue or peptidomimetic of the amino acid sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1);  
and thereby stimulating exfoliation of skin on the mammal.

38. A method according to claim 37, wherein the modulating agent comprises the linear peptide sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:1).

39. A method according to claim 37, wherein the internalization moiety is an internalization sequence.

40. A method according to claim 39, wherein the internalization sequence comprises a sequence selected from the group consisting of RQIKIWFQNRRMKWKK (SEQ ID NO:9), RQIKIWPQNRRNKWKK (SEQ ID NO:10) and YGRKKRRQRRR (SEQ ID NO:14).

41. A method according to claim 40, wherein the modulating agent has the sequence YGRKKRRQRRRGSYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)G (SEQ ID NO:15).

42. A method according to claim 40, wherein the modulating agent has the sequence SYLDS(PO<sub>4</sub>)GIHS(PO<sub>4</sub>)GRQIKIWPQNRRNKWKK (SEQ ID NO:12).

43. A method according to claim 37, wherein the internalization moiety is a liposome.

44. A method according to claim 37, wherein the internalization moiety is an antibody or ligand that specifically binds to a cell surface receptor.

45. A method according to claim 37, wherein the modulating agent is linked to a targeting agent.

46. A method according to claim 37, wherein the modulating agent is present within a pharmaceutical composition comprising a pharmaceutically acceptable carrier.

47. A method according to claim 37, wherein the step of administering comprises contacting skin cells with the modulating agent.